IN THE CLAIMS

Please amend claims 2-4, 6, and 8-13 and cancel claim 1, as follows:

1. **(CANCELED)** A method for brazing, comprising:

applying an alternating current across a work piece, said work piece having a discontinuity, to resistively heat a pre-placed filler metal to a temperature sufficient to melt said pre-placed filler metal, said pre-placed filler metal situated near said discontinuity such that said melted pre-placed filler metal is drawn into said discontinuity;

maintaining application of said alternating current for a set residence time; and

altering said application of said alternating current to achieve solidification of said filler metal.

2. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said alternating current is applied in series across said work piece.

3. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said work piece comprises a material selected from a metal and a ceramic.

4. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said work piece comprises a material selected from nickel, a nickel alloy, titanium, a titanium alloy, iron, a ferrous alloy (carbon, stainless steels, and cast iron), a refractory metal alloy, copper, a copper alloy, aluminum, an aluminum alloy, a ceramic, and an intermetallic compound.

5. **(ORIGINAL)** The method of claim 4 wherein said ferrous alloy is selected from a stainless steel alloy, a cast-iron alloy, and a carbon-ferrous alloy.

6. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said filler metal comprises at least one material selected from copper, gold, nickel, aluminum, cobalt, and palladium.

7. **(ORIGINAL)** The method of claim 6 wherein said filler metal is a copper-silver alloy

8. **(CURRENTLY AMENDED)**The method of claim ~~1~~ 9 wherein said discontinuity has a maximum dimension across said discontinuity of 500 μm.

9. **(CURRENTLY AMENDED)** A method for brazing, comprising:

applying an alternating current across a work piece, said work piece having a discontinuity, to resistively heat a pre-placed filler metal to a temperature sufficient to melt said pre-placed filler metal, said pre-placed filler metal situated near said discontinuity such that said melted pre-placed filler metal is drawn into said discontinuity;

maintaining application of said alternating current for a set residence time, ~~The method of claim 1~~ wherein said residence time is less than 10 seconds; and

altering said application of said alternating current to achieve solidification of said filler metal.

10. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said residence time is less than 3 seconds.

11. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said alternating current is applied across said work piece by attaching clamps to said work piece, said clamps attached to an electrical current source.

12. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said alternating current is applied at a current of less than 5000 amperes and a voltage less than 5 volts.

13. **(CURRENTLY AMENDED)** The method of claim ~~1~~ 9 wherein said alternating current is altered by reducing said current to less than 5000 amperes to achieve solidification of said filler metal.

14. **(ORIGINAL)** A method for brazing, comprising:

applying an alternating current of greater than 1000 amperes across a nickel work piece, said work piece having a discontinuity, to resistively heat a pre-placed copper filler metal to a temperature of greater than 1085°C to melt said pre-placed copper filler metal, said pre-placed copper filler metal situated near said discontinuity such that said melted pre-placed filler metal is drawn into said discontinuity;

maintaining application of said alternating current for a residence time greater than 0.5 minutes and less than 10 minutes; and

reducing the amperage of said alternating current to achieve solidification of said filler metal.

Remarks

The following remarks are provided in further support of the Claims.

Rejections

Rejection Under 35 U.S.C. §103(a)

Claims 1-8 and 11-13 are rejected under 35 USC 103(a) as being unpatentable over Heitman et al. (US 5,102,031).

Objections

Claims 9-10 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

Claim 14 is allowed.

I. DISCUSSION (Rejection Under 35 USC 103(a), Heitman) and Objections/Allowance

The Office states that claims 9-10 are objected to but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 9 has been rewritten to include all of the limitations of the base claim. Claim 1 has been canceled. Claims 2-8 and 10-13 now depend on the allowable claim 9 or intervening dependent claims.

CONCLUSION

Applicants have responded to each and every rejection raised by the Office and, in concurrence with the Office, consider that claims 1-14 are now in condition for allowance. Applicants request expeditious processing to issuance.

Respectfully submitted,

Elmer A. Klavetter
Patent Agent for Applicant
Reg. No. 42,743
Ph: (505) 845-8628
FAX (503) 844-1418

Certificate of Transmission

I certify that this paper is being transmitted by facsimile on this date to the United States Patent and Trademark Office as identified below:

Location: Group Art Unit 1725 Fax No: 571-273-8300

Date: 1/30/06 Elmer A. Klavetter

Elmer A. Klavetter